

# Why Healthcare is Choosing Biztalk Server for Clinical Systems Integration

# Presenters

## PROSCH consulting

INTEGRATING | HEALTHCARE

- Leland Prosch, Managing Partner
- Michael Stonis, Integration Architect



**INHS**  
INLAND NORTHWEST HEALTH SERVICES

- Hal Meints

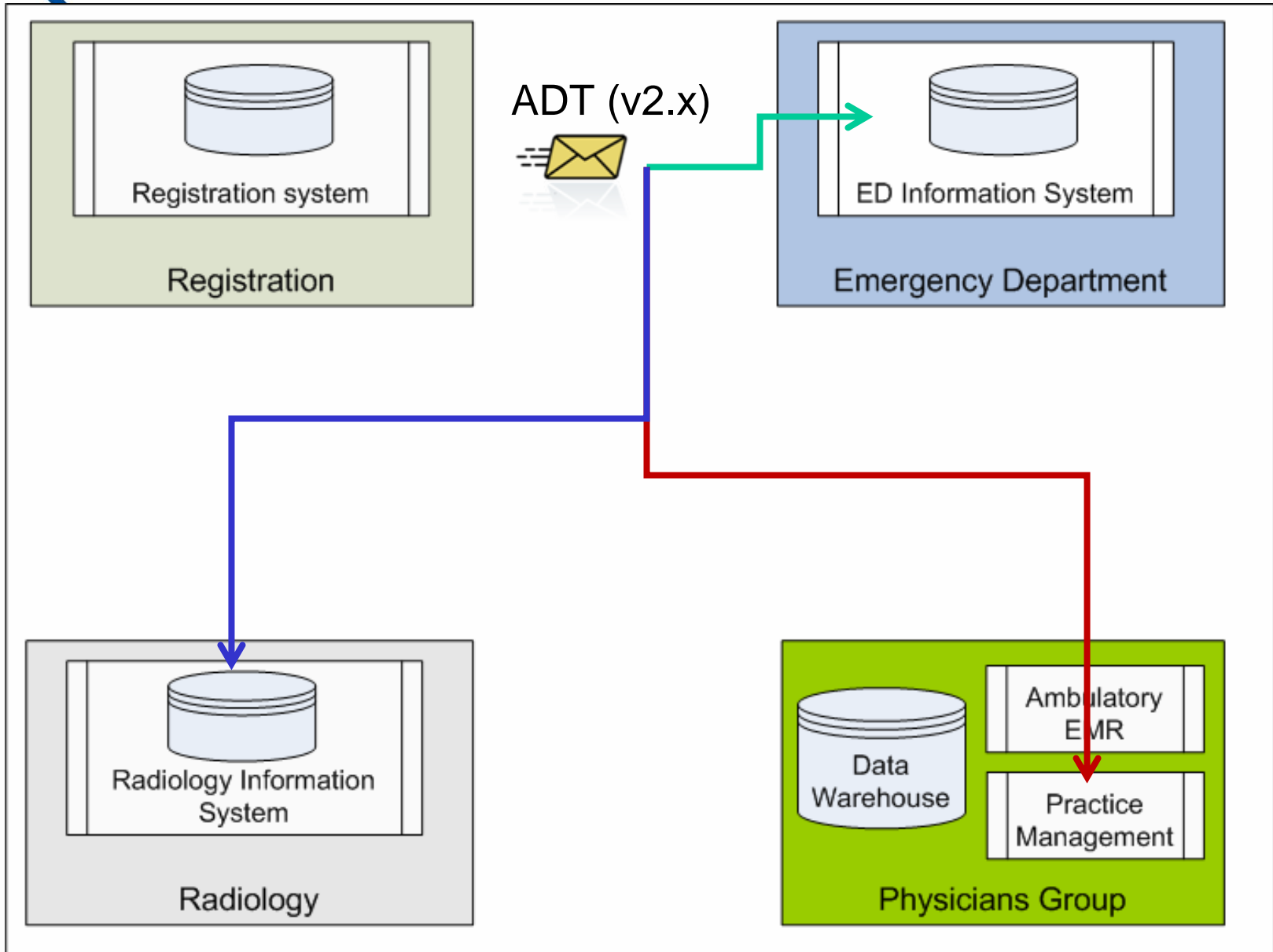
## Agenda

- Quick introduction to HL7 v2, v3, and clinical systems integration
- Who is using Biztalk Server and why
- Customer case study
  - Product selection process
  - Biztalk pros and cons
- Addressing Biztalk's HL7 limitations

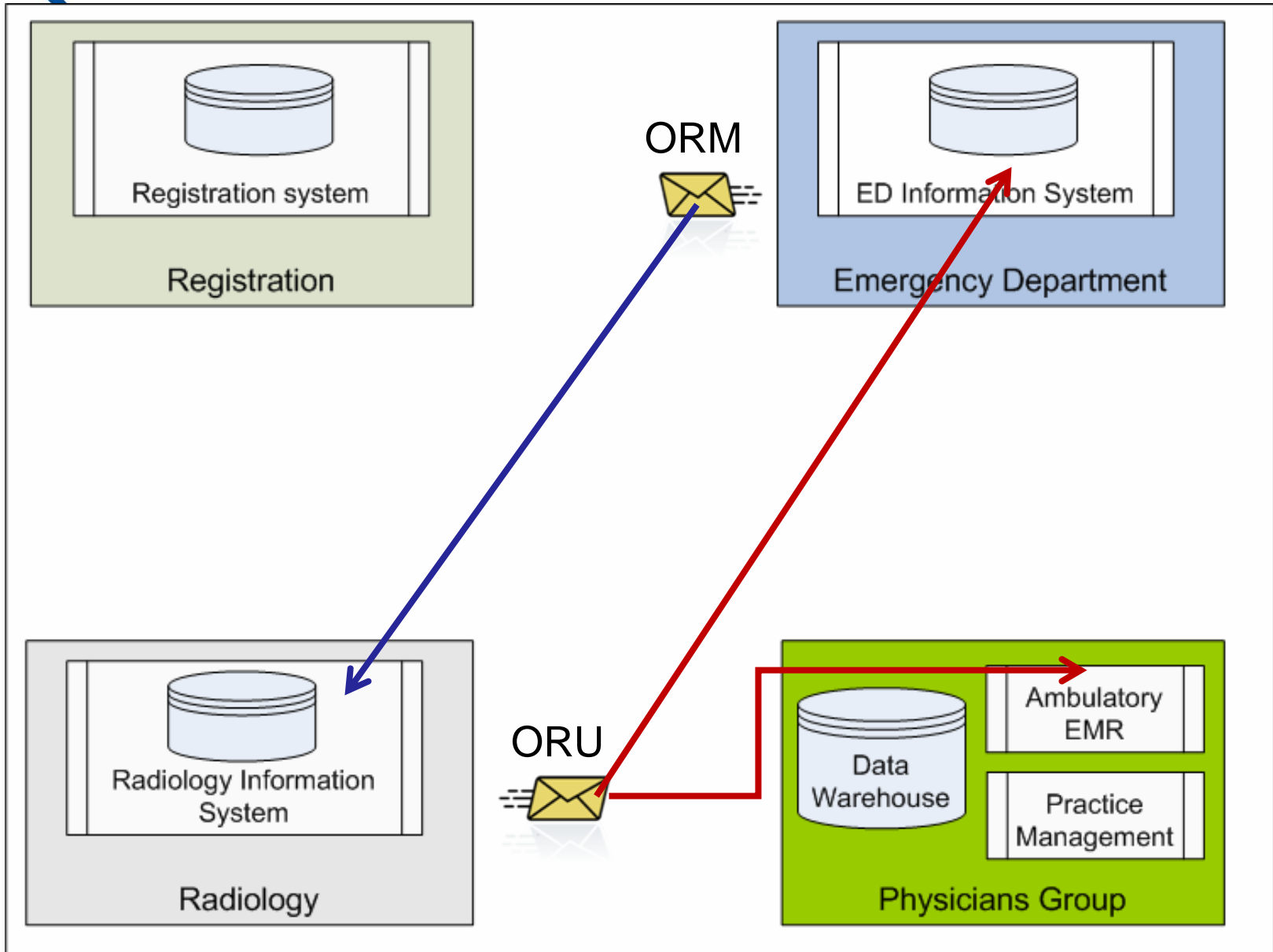
# What is HL7?

- Health Level 7 (HL7) is an ANSI standard messaging protocol first developed in 1987 for healthcare specific data exchange.
- Version 2.x
  - Clinical event driven
  - Supported by most Clinical Application vendors for a short list of typical events
  - Not plug and play
- Next generation – HL7 v3 and IHE profiles
  - Service oriented, hopefully more plug and play
  - Built around use cases representing an entire work flow
  - Application vendors are implementing now

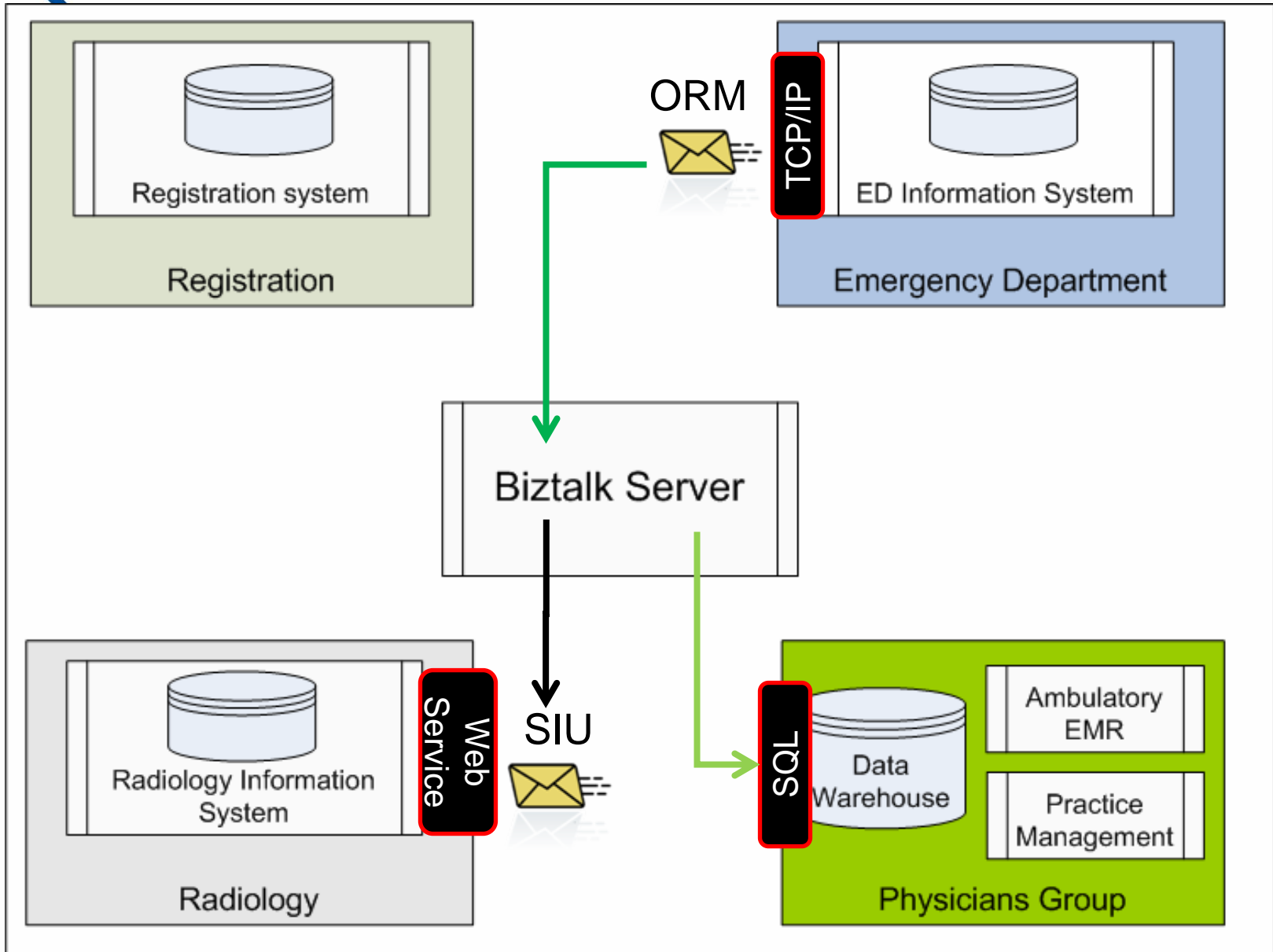
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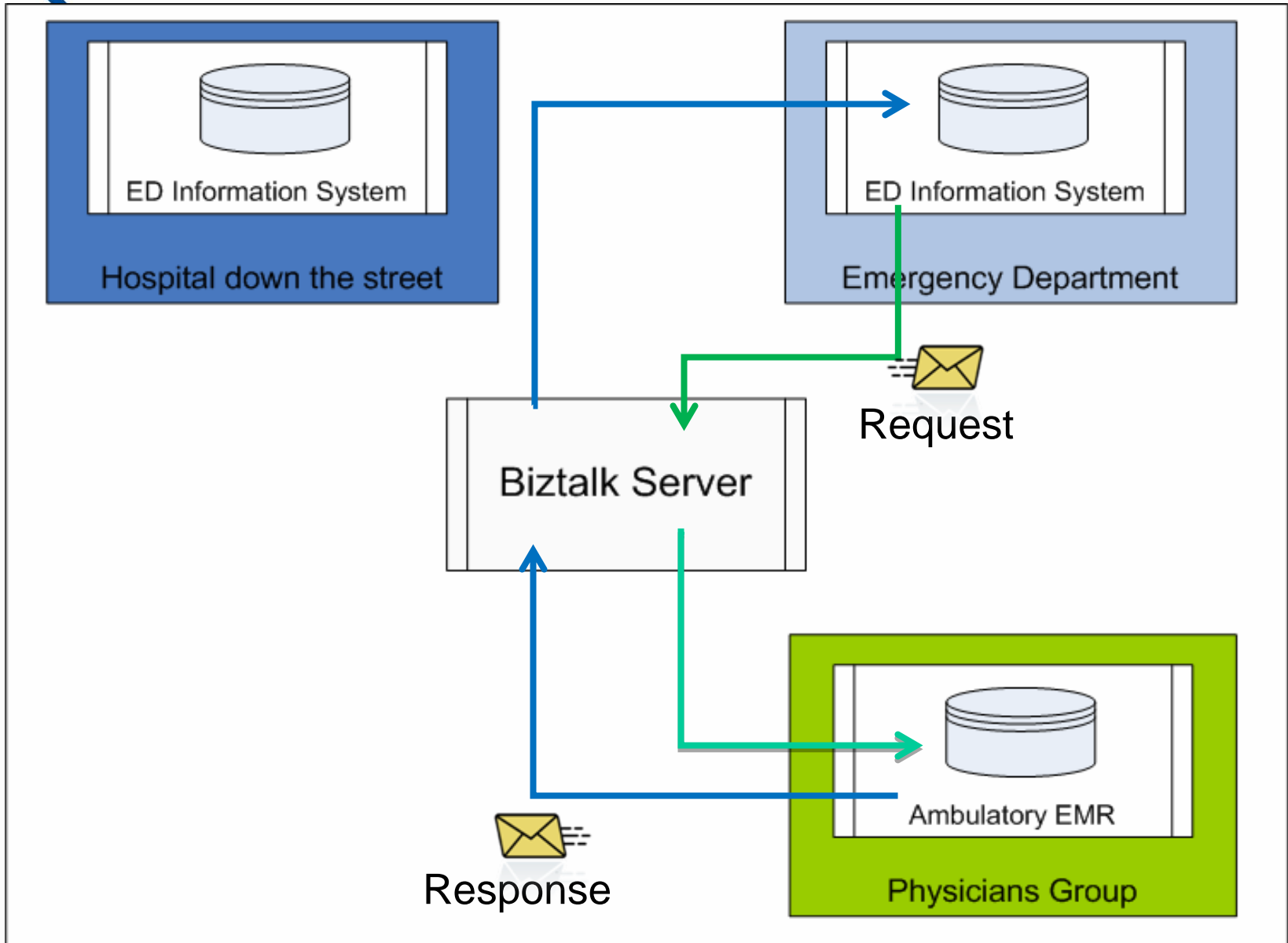
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# Why is healthcare choosing Biztalk?

- Staff
  - Microsoft stack and toolset
  - Availability of permanent or consulting resources to support legacy HL7 interfaces.
- Cost
  - Enterprise licensing vs. per-interface licensing
- Architecture
  - SOA approach to integration.

## Tri-Rivers Health Partners

- Two hospital EPIC and Meditech shop in Illinois
- Replaced legacy eGate engine with Biztalk Server for all HL7 interfaces
- Preparing for HIE
- Use Biztalk for user provisioning

## Advocate Medical Group

- Part of eight hospital system using Allscripts, Cerner, GE and Allegra.
- Biztalk is used for complex integration such registration consolidation and interfaces to custom apps.
- eGate is still used for most Hospital interfaces

## Reference Lab

- Oncology and reproductive medicine lab using Fusion and SOFT LIS.
- Replacing legacy Cloverleaf engine with Biztalk Server for all HL7 interfaces, including 40 customer facing order and result interfaces.
- **Primary requirement: Adding new customer interfaces needs to be fast.**

## State government DOH

- Disease surveillance
  - Using Biztalk to collect lab results and ED discharge summaries (Pilot).
  - Complex rules to identify reportable conditions.
  - Complex master patient business rules

# Inland Northwest Health Services

- Major Healthcare IT provider
- Provide full IT outsourcing for 4x Hospitals
- Typical use of Cloverleaf for message routing
- Microsoft Gold Certified partner

## Empath Suite

Hospital Operations Transformation  
consulting and supporting software

- Applications provide real time status on change indicators
- Dashboards provide goals and measurement of progress
- Five hospitals and growing (xxx billions transactions per year)

## Why we chose Biztalk

- Store and forwarding architecture
- Full HL7 schema for data validation
- Support for non-HL7 standard protocols (HL7, EDI, AS2, etc)
- Support for wide variety of input/output options (Webservices, SQL etc)

## Difficulties after two years

- Strong schema in a loose HL7 world
- Predefined monitoring is not adequate for HL7 interfaces
- NACK processing is specific to customer
- Suspended message processing

## Benefits after two years

- Benefits
  - Strong schema based processing
  - Programmers who know .Net can support applications

# BizTalk HL7 Pre-Processing Pipelines

## HL7 Value Replace

- Inspect a segment, field, component, or sub-component and replace the value before or after the HL7 disassembler
- Helps with issues around invalid use of delimiting characters, especially “&”



# BizTalk HL7 Pre-Processing Pipelines

## HL7 Message Cleanup

- Allow for the replacement of MSH\_3 (Sending Application), MSH\_4 (Sending Facility), MSH\_5 (Receiving Application), MSH\_6 (Receiving Facility), MSH\_12 (HL7 Version)
- Removes Extra Trailing Pipes from Segments
- Applies a fix for formatting the hl7 message properly
- Replaces Carriage Return / Life Feed with just Carriage Return

Stage 1: Decode - Component(3): HL7AdjusterReceive	
ApplyMinimumMSHFieldsFix	True
HL7VersionOverride	2.5
RemoveExtraTrailingPipes	True
UnknownReceivingFacilityName	
UnknownReceivingPartyName	
UnknownSendingFacilityName	
UnknownSendingPartyName	

## HL7 Audit Trail & WIEMM

- Audit Trail
  - Allows for Logging a message to the database on pipeline execution
  - Also can be called from custom .Net components
- WIEMM
  - Basic GUI to replace the functionality found in the HL7 test tools

# Monitoring Solutions

- Exception Notification Service
  - Uses BizTalk ExplorerOM to monitor for failures within ports and orchestrations
  - Shuts down orchestrations and send ports after a failure limit is broken
  - Sends an email to BizTalk administrators
  - Has a BizTalk orchestration that monitors a POP3 message box for service restart requests
- HL7 MLLP Monitoring Dashboard
  - Simple web control for monitoring the status of an MLLP receive location or send port using ExplorerOM and .Net TCP/IP libraries
  - Displays a green light if there is a connection and data is being passed
  - Displays a yellow or red light if there is no connection or a connection has gone stale

## Followup

- Introduction to HL7 and Biztalk webinar:
  - [www.proschconsulting.com](http://www.proschconsulting.com)
- Michael Stonis' Biztalk in Healthcare blog:
  - [blog.proschconsulting.com](http://blog.proschconsulting.com)